BUCKING INTO SNOW.

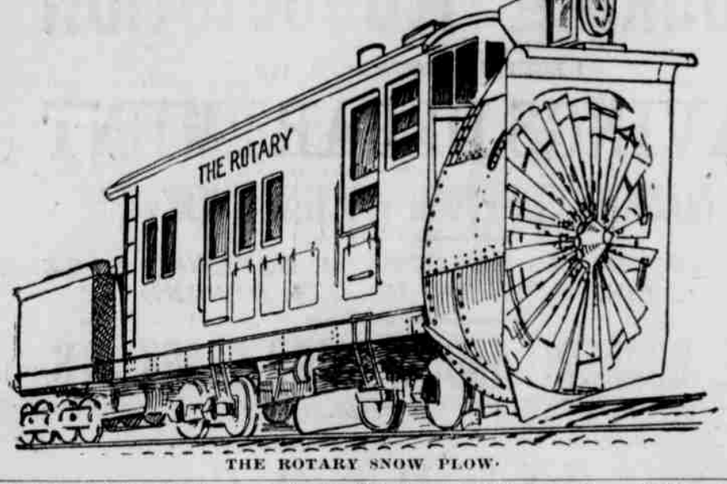
WHAT SEVERE WINTERS MEAN TO RAILROADS.

Thrilling Experiences of Trainmen on the Prairies — Improvements in Methods—Rotary Plows Which Scatter Snow Like Chaff—How the Lines Are Kept Open.

Terrors of the Drifts.

Of all seasons of the year for railroad men winter is the worst. To train and engine men it means extra work and increased hardships; to the officials added cares and anxieties; to the stockholder extra expenses and diminished dividends. It takes a much larger force to do a given amount of work in winter than it does in summer. The oil or "dope" freezes in the boxes on the cars, making the journals turn hard and requiring much more power to haul them. The snow makes a "bad rail"—that is, it makes the rails so slippery that the adhesive power of the engine drivers is reduced so that much less than the usual number of cars can be hauled up a grade and trains cannot make time. Then the ground is frozen hard, the frosty rails are more likely to break under the weight of trains, and a broken rail may cost half a dozen lives.

The whole summer is devoted to preparations for winter. An extra force of men is employed in the shops in getting motive power and rolling stock in good condition for the struggle in frost and snow. Hundreds of men are busy with steam shovels, gravel trains, and pile-drivers getting the roadbed in shape, and numerous bridge gangs look after bridges and culverts. When the ground is once frozen about all the trackmen can do is to patrol the track looking for broken rails and loose bolts, and shovel snow out of frogs and switches. When a joint sags in winter it cannot be leveled up with gravel tamped under the ties. It must be "shimmed." A "shim" is a wedge-shaped piece of hardwood board about eight inches wide which is driven between the rail and the tie until the joint is level with the rest of the road.

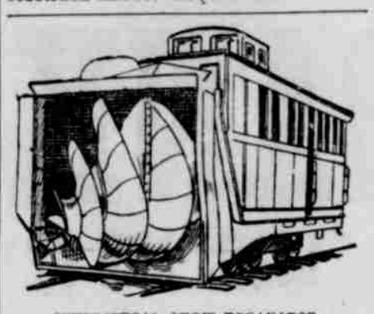


THE ROTARY SNOW PLOW.

LAST RESORT OF THE OLD WAY.

But it is with the first snow-storm that the trouble begins. When word is passed to the dispatcher that a blizzard is raging along the line freight trains already on the road are ordered to "tie up" at coal and water stations, passenger trains at eating stations, and trains that have not left terminal stations are "abandoned," that is, ordered not to leave.

When a train out on the road during a blizzard leaves one station and fails to report at the next in due time the dispatcher does not need to be told that that train is stuck hard and fast in a drift somewhere between the two stations. Accordingly he orders out a snow-plow and a way-car or two to pick up sectionmen to shovel out that train. This relief train stops at each section-house on its way to pick up the "gangs," so that it soon has a good-sized force on board. The plow, or relief train, hurries to the last station the snow-bound train left, then proceeds under full control until the train is found. The railroad men, being familiar with the bad portions of the road, are able in many cases to make a pretty good guess as to where the lost train will be found. Upon reaching it the section men are ordered out to shovel the snow away from the wheels, the snow-plow couples on to the rear car and assists the engine hauling the train to back out of the drift. Then snow plow and train back up to the station, so as to permit the train to sidetrack and let the plow take the lead to clear the track. Or perhaps the relief train may be sent from the opposite direction—that is, meeting the snow-bound train. It depends upon which way the train can be reached the most readily. When all trains are safe everybody simply waits until the storm abates. Then comes "snow bucking."



CENTRIFUGAL SNOW EXCAVATOR.

Railroads within 100 miles of Chicago, according to the Tribune, have but little "snow bucking" to do.

Old engineers on the Northwestern tell of times, when Chicago was somewhat smaller than now, when they had as hard battles with the drifts as any road west of the Missouri. One tale is told of a passenger train that ran into a snowdrift on "Buckhorn" Hill, a few miles south of Milwaukee, and stuck there twenty-four hours before it was shoveled out. The engine was buried completely except a small hole over the smoke-stack melted out by smoke and gases.

On another occasion the same winter six engines coupled together made a run for a drift. The snow was packed so hard that the engine carrying the plow left the rails and climbed up on the snow. When they came to a stop and got down to investigate, the other engine men found the front engine sticking up in the air at an angle of twenty-five degrees, and the engineer and fireman lying under the engine between the firebox and the tank. They were not seriously hurt.

In the good old days that veteran railroaders tell of snow-bucking was done by means of a "push-plow," which was fashioned something like the plows farmers use, except that instead of throwing the snow all to one side, as a big farmer's plow would do it, threw it equally on each side. In other words, the push-plow consists of two concave surfaces joined at an acute angle sloping up at an angle of forty-five degrees from a horizontal plate of steel at right angles to and two inches above the rail. The plow is constructed of heavy iron and massive timbers. It is the width of a car and the top is on a level with the bottom of the headlight. It is bolted on the front of the engine where the pilot is usually carried.

In light snow one engine is sent out with the plow, again two, three, or even five engines are coupled together, according to the depth and extent of the drifts to be encountered. The push plow simply pushes the snow to the sides of the road. The engine or engines are always run at their highest speed, for their weight and momentum are depended on entirely to carry them through. If they were to run slowly they would stick in the drifts and would have to be shoveled out. It is perilous business, for the snow packs so hard out on the great prairies of Kansas, Nebraska, Minnesota and Dakota that it often throws the plow from the track, particularly if it is a side drift, with the snow deeper on one rail than on the other. Sometimes the plow slides up on top of the frozen snow without throwing the engine in the ditch. Hardships, as well as danger, are connected with snow bucking. When running fine snow sifts in through the crevices in the cab, and, falling on the boiler-head, melts, filling the cab with steam. The clothes of the engineer and fireman are soon wet through, and they continue in that condition until their trip is finished. The cold air comes in through the same places that the snow does, so the men are not only wet but cold. The engineer is under a great and constant strain to keep his engine up to its maximum capacity and watching the road. The fireman has no easier time than the engineer, for the coal soon gets so full of snow that only the most expert fireman can keep steam up to serviceable pressure. Sometime an engineer and fireman are out from fifty-six to seventy-two hours on a snow-plow without a moment's rest and perhaps but two or three meals during that time.

As an example of what engine-men are sometimes called upon to endure, take the case of an engineer on the Northern Pacific, who was sent with a snow-plow west from Brainerd in the midst of a blizzard eight years ago to keep the road open. He was to be followed by other plows at intervals of a couple of hours. The officials hoped, in this way, to prevent a blockade. This engineer, after proceeding fifty miles, stuck in a drift. It was so stormy that he could not see the length of his engine. He had a big tank of coal, but the water was low, so he and the fireman took turns shoveling snow into the tank, where it was melted by the "heater"—that is a small pipe to convey steam from the boiler to the tank, to prevent the water freezing. The storm lasted fifty-six hours. All the men had to eat during that time was one small lunch. When the wind went down, they found they were near a farm-house. There they procured food until relief came twenty-four hours later. The engineer was the only one of thirteen caught out on the road in that storm who kept his engine "alive." Five engine-men were frozen to death.

If the snow is very deep the plow is followed by a "drag-out" and a gang of 200 or 300 shovelers. A "drag-out" is another engine to pull the plow engine out of a drift when it gets stuck. On coming to a deep cut the plow stops while the shovelers are brought up to "break" the snow. This is done by digging trenches across the track at a distance of 100 feet, more or less, so that the plow may not have a solid mass of snow to encounter. Then the plow engine backs up for a mile and a half and makes a run for the cut. By the time it strikes the drift it is going sixty miles an hour. The shock is terrific. Often the plow buries itself completely and comes to a full stop in going 400 feet. The concussion throws a ton or so of coal from the tank forward upon the deck of the engine. Sometimes it breaks the machinery so as to disable the engine totally—as the engineer would put it—"she strips herself." Then the shovelers come up and dig the snow away, and if the engine is all right the process is repeated until that cut is clear. It used to be a process of days to clear a division with push plows and shovelers. Each succeeding storm made matters worse, for the snow was simply pushed aside, not thrown out of the way. By the close of a hard winter a great portion of the line would be lined on either side by precipitous cliffs of snow. Sometimes these cliffs became so high that the only way fresh drifts could be cleared away was by shoveling the snow upon flat cars and hauling it out to a place where it could be got rid of.

PASSENGER TRAIN FOLLOWING ROTARY.

HOW THE ROTARY WORKS.

But methods of snow bucking have improved with other branches of railway service. In 1886, J. S. Leslie, of Brooklyn, an employe of the Railway Mail Service, perfected a rotary plow which was designed to cut and throw snow from the track as nearly like the shovel in human hands as it is possible to utilize steam power. This first rotary plow made its trial trip on the Union Pacific Railway in the winter of 1886 and 1887, making a record of 3,000 miles through snow that sometimes reached a depth of fifteen feet, at a cost of 16½ cents a mile for operating both rotary and pusher. This was remarkable when compared with the cost of the old methods of snow bucking. The rotary has been improved since then until it is considered perfect. Now an entire division can be cleared of snow in a day without discomfort to the men who do the work. The plow simply starts from one end of the division and keeps going at the rate of twelve to twenty miles an hour until it gets to the other end, and that is all there is to it. When it goes through a drift it opens a roomy passage, throws the snow entirely out of the way, and "flanges every foot of road. Flanging is cleaning out the snow between and below the level of the rails.

The rotary has been introduced on a large number of the important lines between the Atlantic and Pacific coasts. Thousands of miles of track have been cleared by it without the loss of a single life, it is claimed, or the wrecking of a single engine. Compared with the long lists of costly wrecks and numerous fatalities by the old methods of snow-bucking this is something remarkable. The rotary is also in use on the German and Russian Government lines.

Another plow built and operated on the same principle as the Leslie rotary snow plow is the Joll centrifugal snow excavator. Instead of a flat wheel made up of cone-shaped scoops as in the Leslie plow the Joll plow removes the snow by means of a great auger with the point directed down. It is operated in precisely the same way as the other.

RESULTS OF SNOWED UNDER.

TRULY A DEPRAVED CAT.

He Killed Ducklings and Used Dead Rats to Divert Suspicion.

James Grogan, a Wortendyck, N. J., peddler, who is familiarly known as "Ginger" Grogan on account of the color of his hair and the heat of his temper, owns a large yellow cat that, according to its owner's story, should either be deprived of all its nine lives as a fitting retribution for its stupendous treacher or elevated to the loftiest pinnacle of honor and emolument as the reward of hitherto unheard of feline sagacity.

"Ginger" says that some time ago his house was infested with rats that not only attacked everything gnawable but established such familiar relations with the yellow cat that they often ran over her back with impunity. The peddler tried "rough on rats," which killed half a hundred of the pests, and drove the rest from the house to the barn. This was a doubtful victory, for the banished rats began to prey upon a brood of half-grown ducks that Grogan is raising. They would not touch any more of the "rough on rats," probably because they liked the flavor of the ducks better. Recently the cat took up her quarters in the barn, and remained there day and night. One morning last week Grogan, going to the barn, found the dead body of an immense rat, torn and bloody, with the cat growling over it. She had killed it but had not breakfasted from it. Close to where the rodent had been slaughtered lay the bones and feathers of a duckling. Everything eatable about it had been consumed, and the cat apparently had pounced upon the rat just as he had finished his meal. This was a very praiseworthy thing for the yellow cat to do, but when she did it on eight successive mornings her owner's gratification was qualified by the loss of just that number of young ducks. He thought she ought to kill the rats more expeditiously, and he hid himself in the barn to ascertain why she was so slow in killing them. He says that he saw his cat kill a duckling, devour it, and then drag the bones to a position near a rat hole and wait patiently until the smell tempted a rat to come within reach of her claws. Then she slaughtered it, and sat by its body growling until her master saw her, hoping thus to direct suspicion, that might otherwise be leveled against herself, in the direction of the dead rat.

Selecting a Title.

From first to last Dickens did his work conscientiously, and the selection of titles was a matter of grave anxiety to him, many being rejected before one was chosen. The familiar name of Chuzzlewit, Howard Paul tells us, went through a curious process of evolution. First it was Sweezleden, then Sweezlebuck, then Sweezleway. None of these would do. The Sweezle then became Chuzzle, and there was a new series of Chuzzletoe, Chuzzleboy, Chuzzlewig, and, finally Chuzzlewit. For "Hard Times" nineteen or twenty titles were rejected. Here are some of them: "Heads and Tails," "Two and Two are Four," "Our Hard-Hearted Friend," "Rust and Dust," "A Mere Question of Figures," "Mr. Gradgrind's Facts," "Black and White." "David Copperfield" was especially troublesome. Even after he had fixed upon the hero's name it took him some time to arrange the exact form of the title. During a sojourn in Genoa Dickens was puzzling his brain to find a title for one of his Christmas tales, when the city bells rang out a peal of chimes. He was in a nervous, excited state, and the noise of the bells agitated him. But they gave him the title he was seeking, and he called the book "The Chimes." Another novel for which he found it difficult to decide upon a name was "Bleak House." We might have known it under any of the following titles: "The Solitary House that was Always Shut Up," "The East Wind," "The Ruined Mill that Got Into Chancery and Never Got Out," "The Solitary House Where the Grasses Grew." No doubt Dickens invented some of the names of his characters, but many of the most remarkable were borrowed from signs that met his view in his journeys. I imagined that Chadband was a made name—it fits the character to whom the author applied it so exactly; but it was the name of either a baker or a grocer on the outskirts of the town of Warwick. Jull was the name of a confectioner; Pickwick that of a job-master at Bath. In later life the novelist collected and stored up names for future use, making use of such sources as directories and the small towns in railway guides.

Where Tact Was Needed.

A distinguished foreigner visiting our shores, on meeting an American author of some distinction, blandly asked him if he had ever written anything. Here was a stab to administer to a man's vanity! A woman would never have made a blunder of that sort; she would have found out all about the writer's books before she met him, and made some clever reference to them before she had been five minutes in his company. It is hard to imagine a situation from which a woman's tact will not extricate her. An amusing story is told in this connection by a well-known authoress: While in Trouville, I met a young American and his wife. I knew the latter quite well. In fact, she had been a seamstress for me, and the man she married was one of Philadelphia's Hundred and Fifty. She was clever, pretty, well-educated, and an improvement in her fortunes enabled her to meet her husband in the regular way. He married her, but was not aware of the social position she had formerly occupied. I met them on the promenade and could hardly disguise my surprise, but her tact came to the rescue and saved us all from an awkward position. Here is what she said to me, even before I had a chance to catch my breath: "I am so glad to see you! We need no introduction. What a delightful time I had at you house in New York the last time you were so good as to entertain me! We would like to stay and talk with you, but have a pressing engagement," and with this my friend's pretty wife grasped her husband's arm and pulled him away. While the whole proceeding may be looked upon as one in which assurance played its part, the wife displayed a tact that to me was charming. She was quite good enough for her husband, and knew it, but was afraid that in an unguarded moment I might say something that would give him an idea of the state affairs before she had the opportunity to enlighten him. That man will have a happy domestic life, for nowhere is tact more indispensable than in the home.

Learning Their Lesson.

Engine horses which are expected to rush from their stalls at an alarm of fire differ as much in their capability for learning that duty as schoolboys at their tasks. Half a minute is the maximum time for companies in a first-class department to make ready and leave the house. And the ordinary time is fifteen or twenty seconds. At a night alarm the men slide down on poles from the loft, the horses scramble to their feet, the doors in front of them fly open, and out they rush. Each horse goes to his proper place, and the driver, from his seat, let down the harness. Two or three men, standing at the pole, snap the collars together, fasten the reins to the bits, and off they go.

The author of "Road, Track, and Stable" says that teaching a new horse to come out of his stall at the signal, and range himself alongside the pole, is not so difficult as might be supposed.

Imagine a pair of new horses assigned to an engine. The surroundings are more or less terrible to them, but they are very gently and carefully handled, and gradually lose their fear. Their tuition begins at once, and the driver is their teacher, assisted by the other men.

The ordinary signal is given as if for a fire. The stall doors open, and the horses are led out, put in position, and in a few minutes led back. This process is perhaps a dozen times repeated. Great pains are taken that the animals shall not strike against anything, or be by any means frightened.

The unusual spectacle of a harness suspended in air is apt to disturb them at first, but they are led slowly up to it, and induced to smell of it and inspect it on all sides.

After they have been led to their positions a few times, they are allowed to come of their own accord when the signal strikes, though a man stands behind them to touch them up a little, if they do not start promptly at the opening of the doors. Two weeks constitute the average period of instruction, but horses have been known to learn in one lesson. Others, however, are months in arriving at equal proficiency.

A pair of new horses in a Boston engine-house were led out three times in this manner. They were then left to themselves. The gong sounded, the stall doors opened and the pair trotted out, each going to his place beside the pole. They had caught the idea at once.

An Absent-Minded Man.

Johns Hopkins University still gossips of Prof. Sylvester, the marvelous mathematician who came over from England to teach the science in which all his interests centered. His mind was ever occupied with mathematical problems, and all sorts of things happened to him on the streets of Baltimore. The most amusing episode of his life on this side, however, grew out of a voyage to Europe. While abroad he made some highly important calculations, but on reaching Baltimore he found that the paper on which he figured was missing. So important were the calculations that he took a steamer back to England in order to look up the papers. He did not find them, and started back to the United States deeply disappointed; but during the voyage he accidentally discovered, in a pocket of the overcoat he had worn on the previous voyage, the very thing he was in search of.

Louisiana's Rice Crop.

A Louisiana man says that the rice crop of that State this year will be fully one-half of the entire crop of the United States. "The raising of rice," he says, "has worked wonders for the interest of our State. It has practically opened up a new industry in the agricultural line, and hundreds of farmers who thought their lands valueless when the cotton gave out now find themselves in a position that will soon place them in one year where cotton could not put them in five. It is really the most lucrative of all the new industries in the South."

The Reason for It.

An old law tract assumes to give in this simple language the origin of the tenancy by the law or courtesy of England:

It was called the law of England, because it was invented in England on behalf of poor gentlemen who married gentlewomen, and had nothing to support themselves after their wives' death.

Searching for Knowledge.

The trustees of the Gilchrist educational trust, of England, have decided to send two and perhaps four women teachers in secondary schools and training colleges to America for the purpose of reporting upon the system of education carried on in this country.

HUMAN HOGS ABROAD.

Prize Specimen of the Race Is the Englishman.

Would one grasp the English character on all sides he must travel with Englishmen, says a writer in the New York Sun. They, and that means the provincial Englishman as distinguished from the more civilized Englishmen of London, are full of suspicion, which they do not take the trouble to conceal.

They are convinced that everything and everybody in foreign countries are devised for the sole purpose of inconveniencing them. And here is a story which illustrates this side:

There is a certain Western American, a jovial, honest young man, who delights in being of service to his fellow travelers everywhere in his journey through this vale of sorrows.

Last summer he was journeying from Strasbourg to Frankfort, and in the same compartment with him were a young Englishman and his sister, from somewhere in Yorkshire.

The young American gave the Englishman, soon after the journey began, several papers he had bought. The Englishman stared at him, took the papers and did not thank him.

He held to all of them till he had read the first, his sister sitting with folded hands. When he had done with the first paper he gave it to his sister.

The young American sympathized with a girl who had such a beast of a brother, and, although she was neither young nor comely, resolved to do either of them any service in his power by way of redeeming the reputation of his sex.

When they got toward Frankfort the two English people talked together about trains southward through the Black Forest. They consulted an old time table and decided that there was no train that day. The American, who could not but hear this, said:

"If you will pardon me, there is a train to-day which you may catch at Frankfort."

"My time table says not," said the Englishman, stiffly.

"Here is a later time table which will give you the train," said the American.

The Englishman looked at it, grunted and grew silent.

When they got into the big station at Frankfort it was necessary for all to descend. The English couple had several small bags and one huge affair about as heavy as a keg of nails and three times as bulky.

"Could I be of any assistance to you?" said the American, who had only a light bag.

"Yes," said the Englishman. "Lift out that bag for me." He pointed to the big bag.

"I was determined to get a word of thanks from the man or the woman," said the American afterward, in telling the story, "so I lifted the bag out and then dragged it to the other side of the narrow platform."

"Aw—don't drag that bag about, please," said the Englishman.

The American stood with them, waiting for the "thank you," but it did not come. Instead, the Englishman said:

"Go with my sister and me to the restaurant. We cannot speak German."

So the American went with them, ordered for them and watched them eat, still hoping that the two Britishers would redeem themselves. But when they got through the man said: "Take us back to where the train comes in."

The American was interested. He had seen discourtesy, or what he had thought was discourtesy, in many parts of the world. As a unique study of the human hog this episode attracted him.

He went back with them. Waited in vain for a thank you, and then, lifting his hat with an elaborate bow, he started away. He had got but a few hundred feet when the Englishman came after him. "I say! I say!" he shouted, "come here!"

"Perhaps he has remembered his manners," he thought. But he said: "I say, we want you to come back here and wait till the train comes. There might be some mistake, you know."

"Is that all?" said the American. "Did you ever hear of a pig dog?"

"No," said the Britisher. "What's that?"

"A pig dog," said the American, "is what one German calls another when he wishes to call him by the most contemptuous name in the world. Now, will you tell your sister for me that she is traveling with a pig dog?"

"I don't think we have——" began the Britisher.

"You don't understand me," said the American. "I mean that you are a pig dog, you —— numbskull."

"Oh," said the Britisher, "I've always heard that you Americans were beastly rude and all that. If I were not a clergyman I'd pull your nose."

But the American, being much larger, laughed and walked away.

A Woman's Bright Idea.

It has remained for a woman to invent and patent glass doors for ovens. The wonder is that the idea has not long ago been thought of by some woman who cooks. All cooking instructors lay the greatest stress on the care to be observed opening an oven door to watch the progress of cakes or muffins. Maria Parloa making sponge cake touches the knob with the most delicate care and lightness, dreading even to jar the cake within, and peeks through the smallest crack that will afford the necessary glance. What a relief to walk boldly up to the oven and through those transparent doors which the genius of a Michigan woman has discovered study at leisure the progress of rising cake dough or creeping loaf.